

USSR

UDC:533.17+533.73

YURINSKIY, V. T., SHESTACHENKO, I. Ya.

"Graphic Representation of Equation for Conversion of Energy for a Stream of an Ideal Gas"

Tr. Novocherkas. Politekhn. In-ta [Works of Novocherkassk Polytechnical Institute], 1973, 275, pp 14-21 (Translated from Referativnyy Zhurnal Turbostroyeniye, No 11, 1973, Abstract No 1.49.92)

Translation: The concept of the null-vector fields of velocities of forward motion of molecules of gas, angular velocities of rotary motion of molecules and gas elastic state energy is presented. Based on an equation from the kinetic theory of gases, the local enthalpy of a gas is graphically represented in the form of two coplanar components, placed in an orthogonal system of coordinates at an angle of  $90^\circ$  to each other. The graphic image of the energy transformation equation shows clearly that as molecular motion is developed, directed motion is weakened and vice versa. 2 Figures.

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USSR

UDC:621.165.76-146.1.001.5

YURINSKIY V. T., Doctor of Technical Sciences, Professor, SHESTACHENKO, I. Ya.,  
Engineer

"Results of Experimental Study of Tangential Forces Acting on Blade of Partial  
Turbine Stage"

Leningrad, Energomashinostroyeniye No 8, 1970, pp 8-10

Abstract: Experiments were performed to determine the magnitude and nature of changes in the tangential force acting on rotating turbine blades. The purpose of the experiment was to find the distribution of instantaneous pressures at the greatest possible number of points on the surface of the blade, then by approximate integration, to determine the summary tangential force. The most important result of the experiment is the establishment of the nature of loading of a blade as it enters the stream of air leaving a nozzle. As the blade approaches the nozzle, a reverse tangential force acts upon it. The axial clearance is very significant in determining the variable component of the tangential force. The experiments indicate the variable tangential force acting on a turbine blade as a function of axial clearance and thickness of nozzle output edge. The variable force is proportional to the unevenness of the field of velocities of the working fluid beyond the nozzle.

1/1

USSR

UDC 591.543.42:591.48.2-18.05:599.323

YURISOVA, M. N., Laboratory of Field and Experimental Ecology, Institute of Physiology, of the Siberian Department, Academy of Sciences USSR, Novosibirsk, and Laboratory of Neuroendocrinology, Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Changes in the Hypothalamus-Hypophysis Neurosecretory System of Susliks (*Citellus Erythrogeus* During Hibernation)"

Leningrad, Zhurnal Evolyutsionnoy Biokhimi i Fiziologii, Vol 6, No 5, Sep/Oct 70, pp 516-522

Abstract: Maximum deposition of neurosecretions in the neurosecretory cells of the hypothalamus and the rear portion of the pituitary gland in hibernating susliks is observed during December and January. At the end of January, some activation of the hypothalamus-pituitary neurosecretory system is observed; this becomes quite pronounced in March. As the hibernation period progresses, the functional state of the glandular system changes in the direction of gradual activation. Experimental data collected in a study of 20 susliks indicate that the above glandular system exerts a highly significant effect on the hibernation mechanism.

1/1

USSR

UDO 621.396.62.028.7:621.391.82

PENIN, N.A., KHAYKIN, N.SH., ~~YURIST, B.V.~~

"On The Investigation Of The Noise-Factor Of An Optical Heterodyne Receiver  
With Impurity Photoresistance"

Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1018-1023

Abstract: An expression is found for the noise factor  $F$  of an optical heterodyne receiver with impurity photoresistance and with arbitrary powers of the heterodyne, and for various relations between the resistance of the photo-sensitive semiconductor crystal and the load. The problem of a choice of the parameters of the impurity photoresistance is considered with the object of decreasing the magnitude of the noise factor  $F$ . 3 fig. 7 ref. Received by editors, 12 April 1971.

1/1

USSR

UDC 531.781

YURKAUSKAS, A. I.

"Use of Compensation Method for Measuring Resisting Moments of High-Precision Microminiature Bearings of "C" Class Precision"

Nauchn. tr. vyssh. uchebn. zavedeniy LitSSR. Vibrotekhnika (Scientific Works of Higher Educational Institutions LitSSR. Vibroengineering), 1969, No 3, pp 27-31 (from RZH-Metrologiya i Izmeritel'naya Tekhnika, No 1, Jan 70, Abstract 1.32.328)

Translation: A description of a device for measuring the resisting moments of bearings is presented. The operation of the device is based on measuring the magnitude of torque instability in the internal race of the bearing which appears under the action of friction in application to the external race of constant torque. The instability of torque in the bearing is checked by the change in a current produced by a signal generator whose rotor is coupled with the internal bearing race.

1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF AXIAL SUBSTITUTIONS ON COBALT CARBON AND COBALT NITROGEN  
BONDS IN COBALOXIMES -U-  
AUTHOR--(05)-ROSHCHUPKINA, O.S., RUDAKOVA, I.P., POSPELOVA, T.A.,  
YURKEVICH, A.M., BORODKO, YU.G.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 466-70  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COBALT COMPLEX, OXIME, PYRIDINE, IR SPECTRUM, ELECTRON DONOR,  
EXCHANGE REACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1995/1419 STEP NO--UR/0079/70/040/002/0466/0470  
CIRC ACCESSION NO--AP0116866  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 026

CIRC ACCESSION NO--AP0116866  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. TREATING CHLOROPYRIDINE (OR  
TRIPHENYLPHOSPHINO) BIS(DIMETHYLGLYOXIME)COBALT SUSPENSION IN AQ. ETOH  
WITH NABH SUB4 GAVE COBALOXIMES I WITH INDICATED L AND R: C SUB5 H SUB5  
N, ME, M. 220DEGREES; C SUB5 H SUB5 N, CD SUB3, D. 210DEGREES; PH SUB3  
P, ME, M. 174-6DEGREES; PH SUB3 P, CD SUB3, M. UNSTATED; ME SUB2 S, ME,  
M. 178DEGREES; H SUB2 O, ME M. 108DEGREES; C SUB5 H SUB5 N, HOCH SUB2  
CHCH SUB2 CL, M. 179-80DEGREES. THE IR SPECTRA ARE SHOWN. INCREASED  
ELECTRON ACCEPTOR NATURE OF SUBSTITUENTS IN I REDUCES THE FREQUENCY OF  
CO-C AND CO-N BANDS WHILE INCREASED ELECTRON DONOR ABILITY OF AXIAL  
LIGANDS IN I SHIFTS THE CO-C AND CO-N BANDS TOWARD HIGHER FREQUENCIES.  
FACILITY: VSES. NAUCH.-ISSLED. VIT. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--HALOGENATION OF A BENZENEBORONATE OF D-GLUCOSE -U-  
AUTHOR--(02)--MOGEL, L.G., YURKEVICH, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 708  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BENZENE DERIVATIVE, ORGANOBORON COMPOUND, GLUCOSE,  
HALOGENATION, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1985 STEP NO--UR/0079/70/040/003/0708/0708  
CIRC ACCESSION NO--AP0127380  
UNCLASSIFIED



2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127380

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. HEATING I IN CCL SUB4 WITH 2 MOLES PH SUB3 P, FOLLOWED BY REMOVAL OF PH SUB3 PO AND PHBO SUB2 H SUB2 BY TREATMENT WITH 1,3,PROPANEDIOL, GAVE (VIA II) 79PERCENT III (X EQUALS CL), M. 135-6DEGREES. WITH 1:1 RATION OF THE REACTANTS IN CHBR SUB3 AT 20DEGREES IN 0.5 HR THERE WAS FORMED 81PERCENT III (X EQUALS BR), M. 126-7DEGREES. FACILITY: VSES. NAUCH.-ISSUED, VITAM. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 010  
UNCLASSIFIED  
TITLE--REACTION OF COBALOXIMES WITH URACIL DERIVATIVES -U-  
PROCESSING DATE--30OCT70  
AUTHOR--(04)--BRODULINASHVETS, V.I., RUDAKOVA, I.P., DYMOVA, S.F.,  
YURKEVICH, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 703-4  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COBALT COMPLEX, OXIME, URACIL, CHEMICAL REACTION MECHANISM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0877  
STEP NO--UR/0079/TD/040/003/0703/0704  
CIRC ACCESSION NO--AP0124540  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF HYDRIDES OF COBALOXIMES WITH URACIL DERIVS. RESULTS IN INCLUSION OF CO IN THE URACIL RING IN REACTIONS USING HYDRIDES OF DIMETHYL, AND DIPHENYLGLYOXIMATE COMPLEXES OF CO WITH PYRIDIEN AND PH SUB3 P LIGANDS, AND URACIL, URIDIEN, 2 PRIME, ANHYDROURIDINE, OR URIDINE, 5 PRIME, PHOSPHATE AS THE OTHER REACTANT. THIS AFFORDS A NEW ROUTE TO POLYNUCLEOTIDE MODIFICATIONS. REACTION OF 0.28 G I IN AQ. ETOH UNDER N WITH A SOLN. OF 0.0167 G NABH SUB4 IN ETOH FORMED A BLUD GREEN HYDRIDE; 0.0445 G URACIL IN H SUB2 O WAS ADDED AND THE MIXT. KEPT 45 MIN TO PPT. 75PERCENT II. THE REACTION MECHANISM WAS DISCUSSED. FACILITY: VSES. NAUCH. ISSLED. VITAM. INST., USSR.

UNCLASSIFIED

YURKEVICH, A. Ya.

SPAS: 58876  
27 Apr. 73

(2)

CHARACTERISTICS OF OCCUPATIONAL DISABILITY A.Ya. YURKEVICH, Leningrad Institute of Industrial Hygiene and Occupational Pathology, V.I. Fridkina, Russian, No 3, 1973, submitted 5 September 1972, pp 21-24

Article by A.Ya. Yurkevich, Candidate of Medical Sciences, V.I. Fridkina, Leningrad Institute of Industrial Hygiene and Occupational Pathology, Russian, No 3, 1973, submitted 5 September 1972, pp 21-24

Investigation of the distinctions and dynamics of occupational disability plays a certain part of prevention of such disability. The data on health-improving measures. There are unjustifiably few works dealing with this subject, and the rare publications deal only with a narrow circle of problems.

For two years, we followed up the outcome of occupational pathology in patients picked up in Leningrad in 1968 and 1969. All of the patients underwent comprehensive work-up at the Leningrad Institute of Industrial Hygiene and Occupational Pathology or the Leningrad Institute of Industrial Hygiene and Occupational Pathology. The question of occupational disability status is settled definitively in some cases repeatedly, in 1967. All this provided for proper diagnosis, substantiated therapeutic and work recommendations, and accordingly completeness of gathered data.

For each patient registered by the medical sanitary and epidemiological station in 1968 and 1969 a statistical card was made up which was supplemented by information from his case history (with respect to need of temporary or permanent job placement, severity of illness, etc.) and VIK documents regarding transfer to disability status of these patients in 1968-1969 and 1969-1970 respectively.

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It was learned that about

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YURKEVICH, L. I.

COMMUNICATION-EMOTIONAL SIGNALS OF BLACK SEA DOLPHINS

JPRS 55982

15 May 72

Article by A. A. Pilya, A. G. Tomilov, N. S. Baranovskiy, L. I. Yurkevich and V. H. Lelontsey, Sevastopol'; Kiev, Bionika, Russian, No 5, 1971, 148-150, Naukova Dumka, pp 67-72.

During 1966-1968 specialists at the base of the "Radars" Division of the Institute of the Biology of Southern Seas investigated the communication-emotional signals of nine common dolphins, five bottle-nosed porpoises and five harbor porpoises. The animals were kept singly and in groups in a basin (18 x 13 x 2 m) and in a sea cage made of kapron net (40 x 8 x 10 m).

In registering the sounds of dolphins confined to a basin we used an instrument for measuring sonic pressure with a passband of 0.5-100 kc/sec and a magnetic recorder with a band-pass frequency characteristic 1-100 kc/sec. The signals were analyzed using a SSM 1-2A spectrum analyzer and a R-102 oscilloscope. The rate of sound reproduction was slowed down by factors of 16 and 32.

The lack of a classification of acoustic signals of cetaceans creates great difficulties in determining the biological importance of those sounds. In 1971 the acoustic signals are classified as echolocation, communication and complex. But we receive only echolocation, communication and complex. But we it is common to detect sounds of all three groups (7, 8) and there is a considerable variety of signals even within one group. A group of communication-emotional signals includes one signals, sounds of a nonlocation nature (howling, grunting, chirping, barking, mowing), and also whistles mixed with pure clicks not having a location function. Under nonlocation conditions, when the dolphin is at rest and its location apparatus is not operating, pulsed clicks can have a high and low repetition rate.

**CIA-RDP86-00513R002203710020-4**

PHYSICAL CHARACTERISTICS OF NONLOCATION SOUNDS

Article by A. A. Il'ov and I. A. Yurkevich, "Svetlotopti" (Kiev  
Ruslan, No 5, 1971, 1st-2nd. Knutivna Dumka, pp 37-62)

15 May 72  
DOLPHINS

In studies (1-7) all the acoustic signals of dolphins were classified into three principal groups: 1) pulsed signals used for location purposes; 2) whistles; 3) whistles simultaneously mixed with clicks and other complex sounds (cries, bellowing, moans, etc.) (1, 2, 5). The difference

The diversity of sounds uttered by dolphins is determined primarily by emotional sonic signals. The lack of a classification of acoustic signals in dolphins worked out in creating Great difficulties in determining their biological importance. The classification is complex because in detail in common dolphins and especially in bottlenose dolphins one observes a great number and diversity of vocalizations in three groups.

We will give a classification of sounds in the third group on the basis of their audible perception and will describe these sounds and the behavior of the owl during signaling.

Sounds were studied in three species of Black Sea dolphins (bottle-nosed porpoise, common dolphin and Azov porpoise (Azovia)) during the years 1966-1968 (Table 1). The animals were registered in a basin or underwater cage, under the following multiple repeated situations: capture of the animals and its lifting from the water; "orientation reflex," "feeding" and teasing the hungry animal with a fish, ball games, "communications" of the isolated animals using an electroacoustic communication channel, free swimming, while conducting experiments, dropping wild animals in the basin.

USSR

YURKEVICH, N. I., Editor

UDC: None

Radiotekhnika (Electronics Engineering), Khar'kov, Izd-vo Khar'kov  
State University imeni Gor'kiy, No 20, 1972, 232 pp

Abstract: Most of the 33 articles in this collection deal with the diffraction or dispersion of electromagnetic radiation incident on some material or some structure. Some of the subjects studied are the diffraction radiation of a point charge moving over a grating, the diffraction of spherical waves on a conic surface, the diffraction of an electromagnetic wave on a complex grating, the dispersion of electromagnetic waves from an elliptical rod in a waveguide, and the like. These hint also at another common thread linking these articles: most of them are theoretical in nature and employ sophisticated mathematical approaches. The final section of the book consists of abstracts of the articles.

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USSR

UDC: None

YURKEVICH, N. I., Editor

Radiotekhnika (Electronics Engineering), Khar'kov, Izd-vo Khar'kov  
State University imeni Gor'kiy, No 20, 1972, pp 231-232

Translation:

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USSR

YURKEVICH, N. I., Radiotekhnika, Khar'kov, Izd-vo Khaz'kov State University  
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YURKEVICH, N. I., Radiotekhnika, Khar'kov, Izd-vo Khar'kov State University  
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YURKEVICH, N. I., Radiotekhnika, Khar'kov, Izdo-vo Kharkov State University  
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YURKEVICH, N. I., Radiotekhnika, Khar'kov, Izd-vo Khar'kov State University  
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YURKEVICH, N. I., Radiotekhnika, Khar'kov, Izd-vo Khar'kov State University  
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YURKEVICH, N. I., Radiotekhnika, Khar'kov, Izd-vo Khar'kov State University  
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YURKEVICH, N. I., Radiotekhnika, Khar'kov, Izd-vo Khar'kov State University  
Imeni Gor'kiy, No 20, 1972, pp 231-232

Diffraction Radiation Generator

I. M. Balaklitskiy, V. G. Kurin, B. K. Skrynnik, O. A. Tret'yakov, and V. P. Shestopalov, "Some Operational Peculiarities of a Diffraction Radiation Generator" . . . . .	208
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USSR

UDC [537.226+537.311.33]:[537+535]

YURKEVICH, V.Ye., and ROLOV, B. N.

"Permittivity of Ferroelectric Solid Solutions"

Uch. zap. Latv. un-t (Scientific Notes of Latvia University), 1971, 147,  
pp 35-49 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1253 by authors)

Translation: Within the framework of the thermodynamic theory of ferroelectric solid solutions the authors consider the behavior of permittivity, with allowance for variation with concentration and temperature. The theoretical results obtained are compared with available experimental data for series of ferroelectric solid solutions. The concentration dependence of the Curie-Weiss constant is obtained. A theoretical valuation is made of the halfwidth of the permittivity curve for solid solutions, which correctly reflects experimental regularities.

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USSR

UDC 542.61

ROZEN, A. M., and YURKIN, V. G.

"Reaction of Di-2-ethylhexylphosphoric Acid and Its Uranyl Salt With Solvents. IV. Solutions of  $(HR)_2$  and  $UO_2(HR_2)_2$  in Carbon Tetrachloride"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 862-864

Abstract: The activity coefficients of di-2-ethylhexylphosphoric acid  $(HR)_2$  and its uranyl salt  $UO_2(HR_2)_2$  were determined from the vapor densities in  $CCl_4$  solutions at 10, 25, and 40°C. Heats of mixing have been determined. It was shown that large negative nonideality of the solutions with a rather small negative enthalpy of mixing can be explained by the athermal entropy effect due to the dimerization of  $(HR)_2$  which leads to enlarged molecules and decreased polarity coupled with lower reactivity towards  $CCl_4$ . The enthalpy of a weak chemical reaction of  $CCl_4$  with  $(HR)_2$  and  $UO_2(HR_2)_2$  was evaluated.

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USSR

UDC 542.61

ROZEN, A. M., and YURKIN, V. G.

"Reaction of Di-2-ethylhexylphosphoric Acid and Its Uranyl Salts With Solvents. V. Solutions of  $(HR)_2$  and  $UO_2(HR_2)_2$  in Chloroform"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 864-866

Abstract: The activity coefficients of di-2-ethylhexylphosphoric acid  $(HR)_2$  and its uranyl salt  $UO_2(HR_2)_2$  were determined from the vapor densities in  $CHCl_3$  solutions at 10, 25, and 40°C. Heats of mixing were determined. It was shown that large negative nonideality of the solutions can be explained by the athermal entropy and chemical reaction of  $(HR)_2$  and  $UO_2(HR_2)_2$  with  $CHCl_3$ ; the latter is somewhat weaker in comparison to analogous systems with TBP because of the dimerization of  $(HR)_2$ . The enthalpy of the chemical reaction of  $CHCl_3$  with  $(HR)_2$  and  $UO_2(HR_2)_2$  was evaluated.

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--PROPERTIES OF PYRIDINECARBOXYLIC ACIDS HAVING CARBOXYL AND CARBONYL  
GROUPS IN POSITIONS 2 AND 3 -U  
AUTHOR-(04)-YURKINA, L.P., RUSYANOVA, N.D., LIPATOVA, L.F., KONDRATOV,  
V.K.  
COUNTRY OF INFO--USSR  
SOURCE--KHM. GETEROTSIKL. SOEDIN. 1970, (3), 390-3  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--PYRIDINE, CARBOXYLIC ACID, TITRATION, MOLECULAR STRUCTURE, IR  
SPECTRUM, UV SPECTRUM, CARBOXYL RADICAL, CARBONYL RADICAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0684 STEP NO--UR/0409/70/000/003/0390/0393  
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UNCLASSIFIED

USSR

UDC 616.34-022-078:576.8.083.33

YURKO, L. P., LITINSKIY, YU. I., and PUCHKOVA, A. V., Department of Infection Pathology, Central Scientific Research Institute of Epidemiology and Second Clinical Hospital for Infectious Diseases, Moscow

"Use of Modern Liquid Enrichment Media to Diagnose Intestinal Infections"

Moscow, Laboratornoye Delo, No 9, 1971, pp 544-547

Abstract: A comparison was made of the value of selenite broth and medium M (magnesium) in diagnosing acute intestinal infections. Medium M was prepared by mixing together three solutions: (i) peptone, NaCl,  $KH_2PO_4$ , yeast dialysate, and distilled water; (ii)  $MgCl_2$  and distilled water; (iii) 0.15% aqueous solution of brilliant green. A total of 1,263 coprological analyses were made of stools obtained from adults hospitalized with diagnoses of food poisoning, acute dysentery, gastroenterocolitis, etc. Positive identifications were made in 107 cases. *Shigella* strains were identified in 10 cases (9 *S. sonnei* strains and 1 *S. flexneri* strain) while *Salmonellas* belonging to 13 serotypes of groups B, C, D, and E were identified in 97 cases. Most of the *Salmonellas* identified were from group C. The two media were of equal value except that three more cultures were isolated from the M medium than 1/2

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124356

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT

CIA-RDP86-00513R002203710020-4"

ANHYDROUS IR AND UV SPECTRA OF THE TITLE COMPO. IN 300 TO MINUS 400 MV, WHICH ARE CHARACTERISTIC OF THE MOL. STRUCTURE. THE CHARACTERISTICS OF THE IR AND UV SPECTRA OF THE TITLE COMPODS. ARE DISCUSSED. FACILITY: VOST. NAUCH. ISSLED. UGLEKHIM. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

YURKO, L. P., et al., Laboratornoye Delo, No 9, 1971, pp 544-547

from the selenite broth. The M medium is particularly recommended for diagnostic purposes because it is convenient, cheap, and can be stored.

2/2

- 9 -

USSR

UDC 621.165:62-752

SAMOYLOVICH, G. S., NITUSOV, V. V., and YURKOV, E. V.

"Investigation of the Influence of the Profile Shape of the Working Blades Upon the Excitability of Tangential and Axial Low-Multiple Forced Oscillations"

Tr. Mosk. Energ. In-ta (Works of the Moscow Power Engineering Institute), No 99, 1972, pp 108-113 (from Referativnyy Zhurnal, Turbostroyeniye, No 5, 1972, Abstract No 5.49.35)

Translation: In the work are presented the results of an experimental investigation of the forced oscillations of active-profile blades P5S33A from an irregularly circular low-multiple source ( $K_N = 2 - 8$ ), situated behind the blades. The possibility of evaluating the variable aerodynamic forces acting upon the blade with such excitation is shown. 4 figures. 5 references.

1/1

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USSR

UDC 619:616.9-084

BAKULOV, I. A. and YURKOV, G. G., All-Union Scientific Research Institute of Veterinary Virology and Microbiology

"Anti-Epizootic Measures in Specialized Enterprises of the Industrial Type"

Moscow, Veterinariya, No 6, Jun 71, pp 45-58

Abstract: More than 100 animal diseases are known and it is impossible to eradicate them universally. Specific prophylactic measures have been developed for one group of infectious diseases (anthrax, emphysematous carbuncle, brucellosis, erysipelas, plague, swine fever, leptospirosis, foot-and-mouth disease, rabies, Aujeszky's disease, smallpox, salmonellosis, and others). Another group of infectious diseases has been studied relatively little, with no specific prophylactic measures in existence, but a complex of measures for prophylaxis and eradication does exist (tuberculosis, necrobacillosis, vibriosis, infectious atrophic rhinitis, dermatomycosis and others). Another group of diseases has been insufficiently studied and a system of effective practical measures is being developed for them (infectious cattle rhinotracheitis, cattle diarrhea, infectious gastro-enteritis of swine, and others). A fourth group includes exotic infections which are widespread in other countries and could be carried into the Soviet Union in one way or another (African swine fever,

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USSR

BAKULOV, I. A., et al, Veterinariya, No 6, Jun 71, pp 45-58

vesicular stomatitis, catarrhal fever, and other diseases). Large accumulations of farm animals may change veterinary-sanitary conditions and may enhance the possibility of introducing infectious disease. The most common measures (diagnostic examination, vaccination, and general measures) which different types of animal and poultry farms in the Soviet Union should have available for protection of farm animals and poultry are presented. Additional research remains to be done in the development of measures and new devices against infectious animal diseases. The development of aerosol generators and a method for aerosol vaccination of poultry, particularly against Newcastle disease, is mentioned. The newly developed method is extremely successful and economical and has been introduced on many poultry farms. Also, aerosol vaccination against swine fever has been very successful in farm tests.

2/2

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USSR

UDC 621.357.12.661.418(088.8)

EBERIL', V. I., YELINA, L. M., SHKRED, V. V., TSEYTLIN, R. I., YURKOV, L. I.,  
GURVANOV, L. S., KORYAGIN, V. I., PANCHENKO, M. B., and SHANTALIN, A. N.

"Process of the Decomposition of Active Chlorine in Solution"

USSR Authors' Certificate No 335211, filed 20 Jun 60, published 15 May 72  
(from Referativnyy Zhurnal -- Khimiya, No 8, (II), 1973, Abstract No 81254P)

Translation: A process is patented for the dissociation of active chlorine in solutions by means of heating, which is distinguished in that, in order to increase the velocity of dissociation, a process occurs in order to maintain a stable pH value for the solution equal to 5.5 to 6.5. It is proposed to carry out the process by bubbling gases which have been pre-heated and humidified to 60-100% (relative to the temperature of the solution). The value of the pH of the solution during the process stays in the region 5.5 to 6.5 by the addition of alkaline or alkali salts to the solution. The temperature of the solution is confined to the region 60-100°C. The process is carried out either as a batch or as a continuous system, for example, for the flow of the pre-heated solution across a step-wise capacity pattern. The solution is made alkaline at the beginning of the process; that is, the most rapid reduction in the pH of the solution occurs during the first stage of the process.

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USSR

EBERIL', V. I., et al., USSR Authors' Certificate No 335211, filed 20 Jun 60,  
published 15 May 72.

cess when velocity of dissociation of the active chlorine is highest. From  
50-100% of the alkali reagents supplied in the solution are introduced during  
the first 60 minutes of the process.

2/2

Acc. Nr: **AP0047160**

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,  
Vol 70, Nr 2, pp 191-195

CONCERNING THE QUANTITATIVE EVALUATION OF THE BRAIN  
VEIN TONE ACCORDING TO THE DATA OF ORBITAL  
PLETHYSMOGRAPHY

N. N. Yurkov

The author used the method elaborated by B. Votchal and V. P. Zhmurkin for the estimation of the brain vein tone. According to this method pressure of the neck (20—30 mm of the Hg column) brings on dilatation of the cerebral vessels, which is expressed in an orbital plethysmogram by a simple increase in the volume of the column. According to the amount of this increase the brain vein tone is then being evaluated. The present study permits to establish a parallelism between the vascular reaction to the neck pressure and the reactions to other stimuli, as well as to distinct correlations between the increase in the plethysmographical curve and the increase in the pulse volume. These regularities indicate to the possible reflectory reaction of the cerebral vessels in mechanical irritation of the sinocarotid zone, which should be taken into consideration when applying the indicated technique and in evaluating the brain vein tone.

REEL/FRA  
13790654

2 lc

1/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--PHYSICAL PROPERTIES OF TIN ANTIMONIDE SINGLE CRYSTALS -U-  
AUTHOR-(04)-YURKOV, V.A., YEPISHIN, I.G., TUGUSHEV, S.YR., SJSHNIKOV, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. METAL. METALLOVED, 1970, 29(1), 108-12  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTROMOTIVE FORCE, SINGLE CRYSTAL, TIN COMPOUND, ANTIMONIDE,  
HARDNESS, ELECTRICAL CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1938/0706

STEP NO--UR/0126/70/029/001/0108/0112

CIRC ACCESSION NO--AP0105679

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0105679

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF THE D., MICROHARDNESS, ELEC. COND., AND THERMAL EMF. MEASUREMENTS OF SNSB SINGLE CRYSTALS ARE PRESENTED. THE AV. D. OF THESE CRYSTALS, DETD. BY THE HYDROSTATIC WEIGHING METHOD, IS 6.81 G-CM PRIME3, WHICH IS SOMEWHERE BETWEEN THE D. OF SN AND THAT OF SB. THE MICROHARDNESS WAS MEASURED ON FRESHLY CLEAVED SINGLE CRYSTAL PLATELETS. THE MEASUREMENTS WERE TAKEN WITH THE INDENTOR PARALLEL AND PERPENDICULAR TO THE CLEAVAGE PLANE OF THE SAMPLES. VALUES RANGING FROM 130-140 AND 80-90 KG-MM PRIME2 WERE OBTAINED. AT 60-G LOADS, THE MICROHARDNESS VALUES IN BOTH ORIENTATIONS WERE ABOUT THE SAME. ELEC. RESISTIVITY WAS MEASURED BY THE CONVENTIONAL COMPENSATION METHOD AT 20-200DEGREES. THE RESISTIVITY OF ALL THE SAMPLES HAD A TYPICALLY METALLIC CHARACTER. THE RESISTIVITY PARALLEL TO THE CLEAVAGE PLANE AT 20DEGREES WAS 26.6 TIMES 10 PRIME NEGATIVE6 OHM-CM; AT THE SAME TEMP. THE RESISTIVITY PERPENDICULAR TO THE CLEAVAGE PLANE WAS 65.6 TIMES 10 PRIME NEGATIVE6 OHM-CM. THIS MEANS THAT THE RESISTIVITY PERPENDICULAR TO THE CLEAVAGE PLANE IS BY 2.4 TIMES LARGER THAN THAT PARALLEL TO THE CLEAVAGE PLANE. WITH INCREASING TEMP. THE RESISTIVITY ANISOTROPY SOMEWHAT DECREASES. THE RESISTIVITY OF POLYCRYST. SAMPLES HAD AN INTERMEDIARY VALUE, AND WAS 36.8 TIMES 10 PRIME NEGATIVE6 OHM-CM AT 20DEGREES. IT WAS DIFFICULT TO OBTAIN ACCURATE THERMAL EMF VALUES, AND THE RESULTS OBTAINED VARIED BY 10-15PERCENT. IT IS CONCLUDED THAT AT CONSIDERABLE ANISOTROPY IN THE RESISTIVITY (IS GREATER THAN 200PERCENT), THE THERMOELEC. PROPERTIES OF THE SINGLE CRYSTALS ARE PRACTICALLY ISOTROPIC.

UNCLASSIFIED

USSR

UDC: 669.017:537

YURKOV, V. A., YEPISHIN, I. G., TUGUSHEV, S. YU., and SOSHNIKOV, V. A., Penza Polytechnic Institute

"Physical Properties of SnSb Single Crystals"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metalloveideniye, Vol 29, No 1, Jan 70, pp 108-112

Abstract: The results of an experimental investigation of certain physical properties of SnSb crystals are presented. The procedure for producing samples is described in detail. Density, microhardness, electric conductivity, and thermoelectric force were measured. Density was determined by hydrostatic weighing at room temperature. The average density of SnSb plates was  $6.81 \text{ g/cm}^3$ . The microhardness was measured with a PMT-3 instrument for two indenter positions, one normal and one parallel to the surface. The results are presented graphically. The electric resistance was measured by the usual compensation method, with currents parallel and normal to the cleavage surface. The thermoelectric properties were determined by clamping the sample between two copper blocks.

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USSR

YURKOV, V. A., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 108-112

The temperature of one was maintained at 16°C, while that of the other was varied between 16 and 200°C. The  $\Delta T$  was measured by a thermocouple with  $\pm 0.5^\circ$  accuracy. The thermoelectric force was measured for two directions of the temperature gradient, one parallel and the other normal to the cleavage surface. The results show that the thermoelectric properties of single crystals are practically isotropic. Orig. art. has: 5 figures and 1 formula.

2/2

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USSR

UDC: 519.2

YURKOV, Ye. F.

"Application of Nonlinear One-Dimensional Transformations to the Problem of Approximating a Function From its Values at Randomly Chosen Points"

Moscow, *Primeneniye nelineynykh odnomernykh preobrazovaniy k zadache approksimatsii funktsii po yeye znacheniyam v sluchayno vybrannykh tochek* (cf. English above), Institute of Problems in Data Transmission, Academy of Sciences of the USSR, 1972, 6 pp, bibl. of 2 titles (manuscript deposited in VINITI, No 5370-73 Dep. from 8 Jan 73) (from *RZh-Kibernetika*, No 5, May 73, abstract No 5V276 Dep by the author)

Translation: A method of nonlinear approximation is proposed which may find application in problems of forecasting and pattern recognition. The method is based on evaluating one-dimensional statistical characteristics and therefore does not require large samples, which is important in the solution of practical problems.

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USSR

UDC 681.121.8

YURKOV, YE. V.

"Application of Point Microthermistors in the Study of Cocurrent Flows at Small Reynolds Numbers"

San. tekhnika. Mezhved. resp. nauchn. sb. (Sanitary Engineering -- inter-departmental republic scientific collection of works), 1969, vyp. 8, pp 137-139 (from RZH-Metrologiya i Izmeritel'naya Tekhnika, No 1, Jan 70, Abstract 1.32.756)

[No abstract]

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--LACTIC DEHYDROGENASE ISoenzymes IN THE URINE OF CHILDREN WITH  
CHRONIC PYELONEPHRITIS -U-  
AUTHOR--(02)--PUGACHEVA, V.I., YURKOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--PEDIATRIYA 49(2): 44-84, 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LACTATE DEHYDROGENASE, ISOENZYME, URINE, PEDIATRICS,  
NEPHRITIS, DIAGNOSTIC METHODS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0341

STEP NO--UR/0546/70/049/002/0044/0048

CIRC ACCESSION NO--APO135834

UNCLASSIFIED

2/2 C20

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135834

ABSTRACT/EXTRACT--(U) GP-6- ABSTRACT. THE TECHNIQUE OF DETERMINING TOTAL ACTIVITY AND ISOENZYMES OF LACTIC DEHYDROGENASE IN THE URINE IS DESCRIBED. BASING ON THE INVESTIGATION OF THIS ENZYME IN 38 HEALTHY CHILDREN (FROM 3 TO 14 YEARS OLD) THE STANDARDS OF THE TOTAL ACTIVITY AND ISOENZYMES IN THE URINE WERE ELABORATED, AND IN 62 PATIENTS WITH CHRONIC PYELONEPHRITIS THE DIAGNOSTIC VALUE OF THE ENZYME WAS STUDIED. WITH EXACERBATION OF CHRONIC PYELONEPHRITIS ALL 5 FRACTIONS OF LACTIC DEHYDROGENASE CAN BE DETERMINED. IN SEVERE BILATERAL AFFECTION MARKED PREVALENCE OF CATHODE FRACTIONS WAS OBSERVED. DURING REMISSION THE SPECTRUM OF ISOENZYMES AND TOTAL ACTIVITY APPROACHED THAT OF NORMAL URINE. IN PATIENTS WITH GLOMERULAR AFFECTION OF THE KIDNEYS THE SPECTRUM OF ISOENZYMES IS CHARACTERIZED BY A MARKED PREVALENCE OF ANODE FRACTIONS. FACILITY: DEP. CHIL DIS., MOSCOW, MED. STOMATOL. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

GERSHUNI, G. Z., ZHUKHOVITSKIY, YE. M., YURKOV, YU. S.

"Concerning Convective Stability in the Presence of a Periodically Changing Parameter"

Prikladnaya Matematika i Mekhanika, Vol 34, No 3, 1970, pp 470-480

Abstract: Convective stability is parametrically affected primarily in two ways: modulation of the equilibrium temperature gradient and modulation of the field of external forces. Modulation of the temperature gradient can be effected by means of periodic change, with time, of the temperature at the boundaries of a cavity containing a fluid. Modulation of the field of external forces (the gravity field) originates in the presence of vertical vibrations of the fluid. These mechanisms of parametric action generally differ. By virtue of the temperature skin effect, periodic change of the temperature at the boundaries of the cavity with time brings about modulation of mass (convective) force only in a certain layer, the thickness of which decreases as the frequency increases. In the case of vertical vibrations of a cavity filled with fluid, on the  
1/3

USSR

GERSHUNI, G. Z., et al, Prikladnaya Matematika i Mekhanika, Vol 34,  
No 3, 1970, pp 470-480

other hand, modulation of the convective force is effected (in an incompressible fluid) uniformly throughout the entire volume. This distinction vanishes at comparatively low frequencies, when the thickness of the thermal skin effect is sufficiently large in comparison to the characteristic linear dimension of the cavity. In this limit case the two methods of parametric action are essentially equivalent. The present work continues an investigation published earlier, dealing with the stability of a flat horizontal layer of liquid with free boundaries, with periodic modulation of the vertical temperature gradient, special attention being directed to the low-frequency range, when the temperature skin effect may be disregarded. The present article deals with the effect of parametric action (modulation of the vertical temperature gradient or the gravity field) upon the stability of equilibrium in a flat horizontal layer with free and solid boundaries as well as in a vertical circular cylinder. By means of the Kantorovich method the equation system for perturbations is reduced to a system of conventional equations for time-dependent amplitude equations. Periodic solutions of these equations for the case of sinusoidal modulation are obtained. 2/3

USSR

GERSHUNI, G. Z., et al, Prikladnaya Matematika i Mekhanika, Vol 34,  
No 3, 1970, pp 470-480

soidal modulation were obtained on a digital electronic computer  
by the Runge-Kutta method. The stability boundaries are determined  
in relation to the modulation parameters. The limiting case of high  
frequencies is discussed.

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USSR

UDC 632.95

YUKHTIN, N. N., ANDREYEVA, YE. I., MEL'NIKOV, N. N., SKALOZUEVA, A. V.,  
PRONCHENKO, T. S., SHKURATOVA, G. N., YURKOVA, A. G., KURGANOV, L. B.,  
NOVIKOVA, R. G., and OBUKHOVA, V. I.

"Phenylmercury and Hexylmercury"

V sb. Khim. sredstva zashchity rast. (CHEMICAL AGENTS FOR PLANT PROTECTION --  
collection of works), vyp 1, Moscow 1970, pp 145-150 (from RZh-Khimiya, No 11,  
Jun 72, Abstract No 11N426)

Translation: Seed disinfectant dusts -- hexylmercury (1% EtHgCl, 18-22%  
hexachlorobenzene, and up to 20% -hexachlorocyclohexane) and phenylmercury  
(1% EtHgCl and 18-22% hexachlorobenzene) -- are officially authorized in the  
Soviet Union for use against the same plant diseases as those controlled by  
granosan. About half the EtHgCl expended when granosan is used is expended  
when phenylmercury and hexylmercury are used. Phenylmercury can be used  
against fusarium wilt and helminthosporiosis. The new disinfectants show  
promise as agents for controlling dwarf wheat infections and wheat kernel  
smut. The most promising signal dyes for the disinfected grain are Rhodamine  
C, methylene blue, acid blue-black and direct red 2C.

1/1



USSR

UDC 632.95

5

TEL'NIKOV, N. N., ANDREYEVA, YE. I., PRONCHENKO, T. S., SKALOTUROVA, A. V.,  
SHKURATOVA, G. N., KURGANOVA, I. B., YURKOVA, A. G., OBUKHOVA, V. I., and  
NOVIKOVA, R. G.

"Concerning Liquid Organomercury Seed Disinfectants"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection --  
collection of works), vyp 1, Moscow, 1970, pp 150-155 (From Kh-Khimiya, No 11,  
Jun 72, Abstract No 111427)

Translation: From the results of hothouse and small-plot field tests of  
non-Soviet and experimental Soviet samples of liquid organomercury fungicides,  
as well as with consideration to non-Soviet research and practical use in such  
fungicides, the authors conclude that liquid preparations deserve attention  
as promising forms for use as seed disinfectants in Soviet agriculture.

1/1

USSR

UDC 613.2+615.917:632.951.2

VOLOTNYY, A. V., and YURKOVA, Z. F., Laboratory for Hygiene and the Individual Toxicology of Insecticides (Director, Doctor of Medical Sciences Ye. I. Spynu) and Laboratory of the Analytical Chemistry of Pesticides (Manager, Doctor of Biological Sciences M. A. Klisenko) All-Union Scientific Research Institute of Hygiene and the Toxicology of Pesticides, Polymers, and Plastics, Kiev

"An Evaluation of the Toxicology and Hygiene of Gardona, a New Organophosphorus Insecticide"

Moscow, Voprosy Pitaniya, No 6, Nov/Dec 73, pp 60-65

Abstract: The toxicity of gardona was shown to be rather low (the sub-threshold dose is 0.6 mg/kg) but having a wide range of effects. The toxicological properties are more advantageous than those of most other organophosphorus compounds. It does not accumulate in the tissue to any significant degree and will not be absorbed through the skin. The residual amounts of gardona on cabbage was undetectable 10 days after treatment and on apples, 15-20 days. The residence time depended on the weather. In order to examine chronic exposure to gardona, it was introduced into the stomach where in doses of 15 mg/kg it reduced the activity 1/2

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USSR

VOLOTNYY, A. V., and YURKOVA, Z. F., Voprosy Pitaniya, No 6, Nov/Dec 73, pp 60-65

of cholinesterase on the average to about 80 percent of that of the control group. In only one case was an increase observed. In doses of 3 mg/kg, the threshold dose, the activity of cholinesterase averaged closer to that of the control group, with both higher and lower values observed. Gardona also influenced the liver and the central nervous system.

2/2

USSR

UDC 615.9.074

KLISENKO, M. A., LEBEDEVA, T. A., and YURKOVA, Z. F.

"Chemical Analysis of Traces of Poisons"

Moscow, Khimicheskiy analiz mikrokolichestv yadokhimikatov (cf. English above), Meditsina, 1972, 312 pp (from Khimicheskiy analiz mikrokolichestv yadokhimikatov, pp 2-5, 308-312)

Translation: This book is a handbook on the analysis of traces of poisons. On the basis of many years of experience in the field of analyzing traces of poisons, the authors have included the most sensitive, reliable and simple chemical procedures for analyzing poisons in the air, water, soil, food products, and biological material in this book.

The book opens with a chapter in which the theoretical principles of the basic poison analysis techniques are discussed: photometric, spectro-photometric, polarographic and chromatographic.

In the book procedures are presented for determining all of the most widespread groups of poisons: organophosphorus, organochlorine, copper-containing, 1/21

USSR

KLISENKO, M. A., et al., Khimicheskiy analiz mikrokolichestv yadokhimikatov, Meditsina, 1972, 312 pp (from Khimicheskiy analiz mikrokolichestv yadokhimikatov, pp 2-5, 308-312)

mercury-containing, dinitrophenols, carbamates and dithiocarbamates, poisons of plant origin and others. The procedures for analyzing herbicides are put in a separate chapter.

The description of the analysis procedures is preceded by brief information on the physical-chemical properties of the compounds. At the end of the book there is information about the limiting allowable poison concentrations in the air and water and also the admissible residual amounts of these compounds in food products and forage.

When selecting the reported general theoretical and practical data, we had in mind the interests of those readers who wish to approach the use of the procedures recommended in the book creatively.

The book is designed for chemists and sanitation is physicians at the rayon, municipal and oblast sanitation-epidemiological stations and other specialists working in the field of industrial sanitation chemistry, hygiene of  
2/21

USSR

KLISENKO, A. A., et al., Khimicheskiy analiz mikrokolichestv yadokhimikatov, Meditsina, 1972, 312 pp (from Khimicheskiy analiz mikrokolichestv yadokhimikatov, pp 2-5, 308-312)

labor, hygiene of foods, and public and communal hygiene. It will be useful to toxicologists, forensic chemists, biochemists, veterinary doctors, agronomists, and so on.

The book can also be used as a training aid for students of the medical and other institutions of higher learning.

#### Introduction

At this time the list of chemicals used in the national economy is growing. The application of chemical means of plant protection from pests, diseases and weeds and also chemical means of protecting animals from ectoparasites is acquiring great significance. The research in the toxicity of applied compounds and their normalization in the external environment is expanding simultaneously. The network of laboratories studying the poison content in the air, water, soil, food products and biological material is growing.

3/21

- 6 -

USSR

KLISENKO, A. A., et al., Khimicheskiy analiz mikrokolichestv yadokhimikatov, Meditsina, 1972, 312 pp (from Khimicheskiy analiz mikrokolichestv yadokhimikatov, pp 2-5, 308-312)

However, basic research to study the biological effect of chemicals, deep penetration into the intimate links of the mechanism of their effect on man, animals and plants, sanitary monitoring of the pesticide content in the environment, the diagnosis and prophylaxis of possible acute and chronic poisonings -- these cannot be realized in the absence of reliable methods of qualitative detection and quantitative analysis of these chemicals and the products of their conversion in various media.

The indicated methods must be distinguished by high sensitivity. They must define the residual amounts of pesticides on the level of the maximum permissible concentrations (MPC) or the maximum residual amounts (MRA) which in the majority of cases do not exceed fractions of a milligram per cubic meter of air or per kilogram of food product. Thus, we are talking about analyzing tenths of a microgram of pesticide in a sample in cases where no poison content is admissible, even appreciably smaller amounts. The method must also be selective since several poisons can be present in a sample belonging to various groups of compounds. Transformations of the compounds

4/21

USSR

KLISENKO, A. A., et al., Khimicheskiy analiz mikrokolichestv yadokhimikatov, Meditsina, 1972, 312 pp (from Khimicheskiy analiz mikrokolichestv yadokhimikatov, pp 2-5, 308-312)

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4/21



PURKOVA, Z.F.

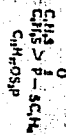
SO: JPRS 59582  
23 July 1973

TOXIC ORGANOPHOSPHORUS COMPOUNDS

[Chapter 2 from the book by M.A. Kiselev, T.A. Iabedava, Z.F. Purkova, Moscow, Khimicheskiy Analiz Nitroglitseryna i Vysokomolikulynykh Soedineniy, Russian, 1972, pp 43-53]

Basic Information About the Properties of the Compound

NOTES: [3, 5, 6-tributyl triphosphates]



Molecular weight: 314.29

Synonyms: foler, DFE, methos.

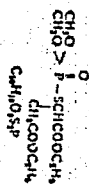
Pale yellow fluid with unpleasant odor.

Boiling point: 154° (0.5 mm Hg).

Virtually insoluble in water. Dissolves well in organic solvents.

Manufactured in the form of 70% concentrate of emulsion or oil solution.

CAS: 100000-00-0 (0,0-dimethyl-S-(1,2-dicarbonyl-ethyl)-dithiophosphate)



Molecular weight: 330.33

Synonyms: malathion, malathion, compound 4049.

- 1 -

[1 - USSR - D]

Analytical Chemistry

USSR

UDC 632.96

KLISENKO, M. A., LEBEDEVA, T. A., and YURKOVA, Z. F.

"Chemical Analysis of Trace Amounts of Poisonous Chemicals"

Khimicheskiy analiz mikrokolichestv yadokhimikatov (cf. English above), Moscow, "Meditsina", 1972, 312 pp ill. 1 r. 66 k (from RZh-Khimiya, No 22, Nov 72, Abstract No 22N382)

Translation: The work discusses the simplest, most sensitive and reliable methods of determining poisonous chemicals -- organophosphorus, organochlorine, copper-containing and mercury-containing dinitrophenols, carbamates and dithiocarbamates -- in the air, water, soil, food products and biological materials. In addition, the theoretical principles are given for basic methods of analyzing poisonous chemicals -- photometric, photospectrometric, polarographic and chromatographic. Information is given on the physical and chemical properties of chemicals, maximum permissible concentrations in the air and water, and also the permissible residual quantities of the chemicals in food products and animals feed. The authors generalize the experience on extracting chemicals from a sample and purifying the extracts. (From the abstract).

1/1

USSR

UDC 621.317.729

ZUBOV, V. G., and YURKOVSKIY, D. A.

"A Measuring Amplifier with High Input Impedance for Low DC Voltages"

Otbor i peredach inform. Resp. mezhved sb. (Selection and Transmission of Information. Republic Interdepartmental Collection), 1972, No 32, pp 93-96 (from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika, No 3, Mar 73, Abstract No 3 A299 by the authors)

Translation: An amplifier circuit using field effect transistors for the measurement of DC voltages in the 0-100 microvolt range is described; the instrument has high input impedance. The characteristics of its design are explained and its basic technological characteristics are given. One illustration, eight bibliographic entries.

1/1

Oscillators and Modulators

USSR

UDC 621.382.32

ZUBOV, V. G., YURKOVSKIY, D. A.

"Modulator of Small DC Voltages Based on a Field-Effect Transistor With PN Junction"

Kiev, Otbor i Peredacha Informatsii, Resp. Mezhd. Sb.,  
No 28, 1971, pp 61-64

Abstract: The authors briefly discuss the principal characteristics of a field-effect transistor with gate in the form of a PN junction as compared with those of a conventional bipolar transistor. A modulator circuit for small signals is proposed which utilizes a field-effect transistor with PN junction as a switching device. Expressions are given for the main parameters of the circuit. A modulator circuit was experimentally studied in which the FET with PN junction and P-channel had the following parameters:  $S_{max} = 0.3-0.35 \text{ mA/V}$ ,  $U_0 = 2-3 \text{ V}$ ,  $I_3 = 1 \cdot 10^{-9} \text{ A}$ , and  $r_0 = 3 \text{ k}\Omega$ . It was found that the modulator has an average input impedance of  $1.7 \text{ M}\Omega$  when the

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USSR

ZUBOV, V. G., YURKOVSKIY, D. A., Otbor i Peredacha Informatsii, No 28, 1971, pp 61-64

residual zero voltage level  $\Delta U_0$  adjusted to the modulator input is no more than 10  $\mu V$ . If it is assumed that the useful signal amplitude is equal to  $\Delta U_0$ , then the current sensitivity threshold of the modulator is of the order of  $5 \cdot 10^{-12}$  A. The conversion factor of the circuit is 0.28. One figure, bibliography of six titles.

2/2

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USSR

UDC: 621.396.6.049.75.002

YURKOVSKIY, Ye. V., MAKLAVEYEV, A. A.

"Ways to Increase Packing Density in Printed-Circuit Assembly"

V sb. Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry—collection of works), vyp. 4, Moscow, 1972, pp 29-30 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V330)

Translation: The paper shows the feasibility of integral estimation of mounting density, and of using statistical and informational criteria and procedures for quantitative estimation and comparison of printed-circuit board designs with respect to the possibility of tracing connections between elements (junctions) located on the printed-circuit boards. Resumé.

1/1

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1/2 C17 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--INELASTIC AND ELASTIC ENERGY LOSSES DURING THE CHANNELING OF SLOW  
ATOMS AND IONS -U-  
AUTHOR--(02)--GURVICH, L.G., YURKULOV, U.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1427-30  
DATE PUBLISHED-----7C  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ION INTERACTION, ELASTIC SCATTERING, INELASTIC SCATTERING,  
CRYSTAL PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/0375 STEP NO--UR/0181/70/012/005/1427/1430  
CIRC ACCESSION NO--AP0131462  
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELASTIC AND INELASTIC ENERGY LOSSES WERE CONSIDERED OF SLOW IONS IN THE CHANNELS OF CRYST. MATERIALS.

IN DETN. OF INELASTIC LOSSES OF THE ENERGY OF CHANNEL LED IONS, IT IS ASSUMED THAT ELECTRONS OF INTERNAL SHELLS OF ATOMS OF THE HINDERING MEDIUM DO NOT CONTRIBUTE TO THE ENERGY LOSSES, THE NO. OF WHICH WAS FOUND BY USING THE THOMAS FERMI MODEL. AN EXPRESSION WAS OBTAINED FOR THE ENERGY AT WHICH ELASTIC AND INELASTIC LOSSES ARE EQUAL.

FACILITY: INST. YAD. FIZ., ULEGBER, USSR.

UNCLASSIFIED



USSR

UDC 612.851.014.423

YURKYANETS, Ye. A., and MATYUSHKIN, D. P., Laboratory of Neuromuscular Physiology, Physiological Institute, Leningrad State University

"Electrical Activity of the External Ear Muscles of Man at Rest and During Differentiation of Acoustic Signals"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 75, No 3, 1973, pp 16-19

Abstract: Electromyograms were recorded from the superior and posterior auricular muscles in 15 healthy human subjects while they were listening to pairs of sounds (2,000±40 Hz, 20-30 db, either sound lasting 500 msec and separated from the other by 25 msec) delivered at 8-sec intervals and, by pressing one of three buttons, immediately stated that the second sound was identical with or higher or lower than the first sound. Significant activation of the superior and inhibition of the posterior auricular muscles lasting 1.1-1.6 sec were observed in all subjects. The reaction began less than 0.2 sec after delivery of the signal in 64% and 0.3-1.5 sec prior to signal delivery in 36% (conditioned reflex). A good correlation was found between the magnitude of the averaged integrated potentials and the number of erroneous evaluation of the pitch, that is, the more difficult it was to differentiate the two  
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USSR

YURKYANETS, YE. A., and MATYUSHKIN, D. P., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 75, No 3, 1973, pp 16-19

tones the greater was the activation of one and inhibition of the other external ear muscle. The response is compared to the cocking of ears by animals. Though it has no acoustic value, it is a reliable sign of attentive listening and may possibly be utilized as an index of the functional state of the auditory apparatus.

2/2

USSR

UDC: 621.396.24

YURLOV, F. F., YAMPOL'SKIY, E. M.

"Experimental Determination of the Durations of Interruptions and Gaps in Communications on Short Waves"

Tr. Gor'kov. politekhn. in-ta (Works of Gor'kiy Polytechnical Institute), 1971, 27, No 11, pp 103-105 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A276)

Translation: A brief report on the results of work in studying the statistical principles which govern fading on short waves. The measurements were made with a special receiver and a loop oscilloscope. Statistical processing of the oscillograms gave a law for distribution of the amplitudes of a fading signal, and laws of distribution of interruptions and gaps in communications. Two illustrations, bibliography of two titles. N. S.

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USSR

UDC: 621.391.8

YURLOV, F. F. and NURDINOV, S. Kh.

"Noise Immunity System for Transmitting Binary Information With Fading and Power Pulse Noise"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol. 13, No. 9, 1970, pp 1099-1106

Abstract: This article describes a method of group transmission using the principle of time signal separation. The essence of the method of time signal separation is described as transmitting a succession of elemental symbols corresponding to some time interval and making up part of a message, with the elements recorded on the screen of a memory electron-beam tube in which the scanning period is equal to the difference between the duration of an elemental symbol and the duration of the sync pulse. An extensive discussion of the method is given, together with block diagrams showing the makeup of the transmitter and the receiver, and a textual discussion of the operation of both assemblies. The most

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USSR

YURLOV, F.F., et al, Izvestiya VUZ - Radioelektronika, Vol. 13, No 9, 1970, pp 1099-1106

important advantage of the system is said to be its broad bandwidth, which guarantees the effective operation of the system under intentional jamming or natural noise conditions. A mathematical discussion of the system's noise immunity with respect to intensive fading is given on a statistical basis. An expression is obtained for the mean signal separation time under the assumption that the duration of the communication break exceeds the transmission time of a section of the message.

2/2

USSR

UDC: 621.378.525:532.57

DOMARATSKIY, A. N., KUDRYAVTSEV, M. B., SOBOLEV, V. S., SHMOYLOV, N. F., and YURLOV, Yu. I.

"Investigating the Effect of Scattered Particle Concentration on the Correlation Time of the Laser Doppler Velocity Measurement Signal"

Novosibirsk, Avtometriya, No 5, 1972, pp 122-125

Abstract: The experimental investigation of the effect of scattered particle concentration on the change in the statistical characteristics of a Doppler signal is described. It was conducted for the change in the maximum correlation time of the Doppler signal correlation function. A diagram of the experimental apparatus, involving a single laser type LG-75, operating in the TEM<sub>00</sub> mode, is given. The single beam from the laser is split in two by a dividing plate, with the diameters of each beam measuring 0.02 and 0.1 cm, and both are then converged on a bulb of double-distilled water. The result is the formation of an interference pattern. It is concluded from the experiment that the correlation time and the correlation function of the Doppler signal are dependent on the change in scattered particle concentration if there

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USSR

UDC: 621.378.525:532.57

DOMARATSKIY, A. N., et al, Avtometriya, No 5, 1972, pp 122-125

are fewer than 10 particles in the scattering space and are independent of the change if there are, on the average, 15-70 scattered particles.

2/2

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USSR

UDC 621.382.2

YURLOVA, G.A., KOLOMIYETS, B.T.

"Glasses In The System Ge-As-Te And The Technology Of Producing Devices On Their Bases"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronics Technology. Scientific-Technical Collection. Microelectronics), 1971, No 3(29), pp 14-17 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B161)

Translation: The electrical conductivity and the activation energy are determined for glasses of the system Ge-As-Te with gradual isomorphous substitution of part of the germanium for silicon and part of the tellurium for selenium. The electrical parameters are presented of two- and three-electrode S-switches.

Summary.

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Electrochemistry

USSR

UDC 541.13

YURLOVA, G. A.

"Some Problems of Formation of a Metal to Organic Semiconductor Contact, Part I, Method of Obtaining a Mixed Film"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLV, No 5, pp 1128-1131

**Abstract:** The theoretical possibility of obtaining a thin mixed film of organic semiconductor formed as a result of a chemical reaction is demonstrated. The results of element analysis, mass-spectrometric, and polarographic studies of reaction products in extremal compositions demonstrates that mixtures can be obtained by preliminary oxidation of copper plates or by using copper alloys. As a result of oxidation of the copper plates, a mixture of metal-free phthalocyanine and copper phthalocyanine grows on the surfaces of the plates, and when an alloy is used, a layer of copper phthalocyanine and the admixture metal phthalocyanine is formed. Different conditions of oxidizing the copper plates lead to different ratios of the metal-free and copper phthalocyanine in the film.

The yield of copper phthalocyanine is a function of the percentage ratio of cupric and cuprous oxides in the mixture and the volt-ampere characteristics of varistors made of the oxidized copper plates are plotted. The

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USSR

YURLOVA, G. A., Zhurnal Fizicheskoy Khimii, Vol XLV, No 5, pp 1128-1131

results of mass-spectrometric analysis of the gaseous products of the phthalocyanine reaction are tabulated. The volt-ampere characteristics of the systems studied are symmetric and exhibit a nonlinearity of the varistor type. The varistors manufactured from copper plates with a mixed layer of copper phthalocyanine and nonmetal phthalocyanine had appreciably higher currents than varistors manufactured from copper plates with a layer of only one copper phthalocyanine.

2/2

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USSR

UDC 576.858.5.095.383

SELIVANOV, A. A., KOVALEVA, T. P., AKSENOV, O. A., YURLOVA, T. I., LYSOV, V. V., KRYLOV, V. A., and SMORODINTSEV, A. A., All-Union Scientific Research Institute of Influenza, Ministry of Health USSR, Leningrad.

"Anti-Interference Effect of Adenoviruses"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 574-577

Abstract: Crude adenoviruses, serotype 1, 4, and 7 adenoviruses heated to 56°C for 30 min, and purified pentone antigen of serotype 4 suppress induction of interferon by influenza A2 Hong Kong Virus and inhibit interference between influenza A2 virus and vesicular stomatitis virus in chick embryo fibroblasts. Adenoviruses treated with trypsin, fibrantigen, and hexone-antigen no longer have this capacity. There is a good direct correlation between the cytotoxic, anti-interference, and anti-interferon-inducing capacities of the above-mentioned strains of adenoviruses. None of these strains stimulates reproduction of vesicular stomatitis virus. It is postulated that anti-interference is due not only to inhibition of interferon production but also to reduction of the activity of previously produced interferon.

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USSR

UDC 576.858.5.095/.097

KOVALEVA, T. P., YURLOVA, T. I., BOLDASOV, V. K., LYSOV, V. V., RUDENKO, L. G., AKSENOV, O. A., and SELIVANOV, A. A., All Union Scientific Research Institute of Influenza, Ministry of Health USSR, Leningrad

"Biological Properties of Two Strains of Adenovirus Serotype 4"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 700-703

Abstract: A comparative study of normal and attenuated strains of adenovirus serotype 4 revealed a number of significant differences.. While at the optimum culture growth temperature of 37°C, both strains reproduce at the same rate, at 28°C the attenuated strain proliferates much faster and at 40°C much slower than the parent strain. While both strains are almost equally sensitive to human leukocytic interferon, the attenuated strain is significantly more sensitive to nonspecific thermolabile inhibitors, and has a much higher interferon-stimulating and interference activity and a much lower cytotoxic activity. After experimental inoculation of human subjects, both strains cause a rapid, fourfold increase in serum antibody concentration. However, the disease induced by the attenuated strain is considerably less severe and of shorter duration than that induced by the parent strain.

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USSR

UDC 576.858.5.06:576.858.5.097.39].083.1

SELIVANOV, A. A., LYSOV, V. V., YURILOVA, T. I., and ARSENOV, O. A., All-Union Scientific Research Influenza Institute, Ministry of Health USSR, Leningrad

"A Comparison of Two Methods of Titrating Adenoviruses"

Moscow, Voprosy Virusologii, No 5, 1971, pp 600-603

Abstract: While there is a linear relationship between the titer of adenovirus and incubation time, the ambiguity of the results makes it difficult to compare the strain properties of the agent. Experiments with adenoviruses serotypes 1 and 2 adapted in different degrees to low incubation temperatures in guinea pig kidney tissue culture showed that such comparison can be conveniently made by approximating the titer-incubation time relationship from the sum of the least squares. The accurately reproducible results of the approximation, the regression coefficient of cytopathogenic and cytotoxic activities, correlate with other biological properties and can be used as markers to differentiate adenovirus variants of the same serotype.

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1/2 013 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--ALUMINUM CHLORIDE MONOAMMONIATE AS A CATALYST FOR THE  
HYDROCHLORINATION OF ALUMINUM IN A MELT -U-  
AUTHOR-(04)-YURLOVA, Z.I., GROSHEV, G.L., DANOV, S.M., SHILOVA, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(4), 894-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ALUMINUM CHLORIDE, CATALYST, CHLORINATION, ALUMINUM, CATALYST  
ACTIVITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/C949 STEP NO--UR/0080/70/043/004/0894/0896  
CIRC ACCESSION NO--AP0131534

UNCLASSIFIED

2/2 013  
CIRC ACCESSION NO--AP0131534  
ABSTRACT/EXTRACT--(U) GP-O- UNCLASSIFIED PROCESSING DATE--11DEC70  
ABSTRACT. THE FEASIBILITY OF INCREASING THE  
SPEED OF HYDROCHLORINATION OF AL IN A MELT BY USING THE MONOAMMONIATE OF  
ALCL SUB3 AS A HCL ACCEPTOR WAS STUDIED. THE CATALYTIC ACTIVITY OF THE  
MONOAMMONIATE WAS ATTRIBUTED TO THE FORMATION OF A COMPLEX WITH HCL  
CONTG. UP TO 3 MOLES OF HCL PER MOLE OF MONOAMMONIATE.

UNCLASSIFIED

USSR

UDC: 536.46:533.6

YURMANOV, YU.A., RYZHIK, A.B., LIMONOV, B.S. and MAKHIN, V.S.

"On Ignition of Dispersed Magnesium in Oxygen Behind the Shock Waves"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 (11-th All-Union Conference on Problems of Evaporation, Combustion and Gas Dynamics of Dispersion Systems, 1972), 1972, p 58 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B1005)

Translation: Tests were conducted with a shock tube of 7.5 m length, 100 mm inside diameter (length of high-pressure chamber 3 m), initial pressure of oxidizing gas (oxygen) 120 mm of mercury. Products of explosion of  $2H_2+O_2+4He$  mixture with various initial pressures were used as propelling gas, particle size did not exceed 20 micrometer.

Analysis of experimental data shows that the ignition of magnesium particles occurs in the reflected wave and that the duration of pre-ignition heating depends substantially on the intensity of the impinging shock

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USSR

YURMANOV, YU. A., et al., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972

wave. Calculations show that heating of solid particles suspended in the gas results in considerable reduction of reflection zone temperature, therefore it should be considered as temperature of the medium where ignition takes place. The observed exponential relation between ignition lag and temperature indicates that increase of the latter may result in ignition lag becoming of the same order as the duration of explosion induction.

2/2

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USSR

UDC 535.233+629.7.018.1

KARPUNOV, Ye. G., NEGRUTSAK, L. M., RYZHIK, A. B., FRAYERMAN, S. I.,  
and YURMANOV, Yu. A.

"Spectroscopic Investigation of Supersonic Heterogeneous Currents  
in a Combustible Condensed Phase"

Novosibirsk, Fizika gorennya i vzryva, No 3, 1973, pp 387-391

Abstract: In connection with the problem of the combustion of metallic particles in ultrasonic currents, the authors describe investigations into the relative energy spectrum distribution in the interaction of detonation waves in stoichiometric hydrogen-air mixtures with aluminum and magnesium powder suspensions. They conducted their experiments in accordance with the method of heterochromatic photometry, using a formula developed in this article for the radiating surface temperature. A description of the experimental equipment, which includes a shock tube, pressure sensors, and the ISP-51 spectrograph, is given. The tube was 7.5 m long and had an inner diameter of 100 mm, with the suspended material placed in the closed end. Results of the experiments were analyzed by comparing the experimental data with the conclusions of hydrodynamic theory.

1/1

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UDC 629.7.036.54:536.46

USSR

YURMANOV, Yu. A., RYZHIK, A. B., LIMONOV, B. S., and MAKHIN, V. S.

"The Ignition of Dispersed Magnesium in Oxygen Behind Shock Waves"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik (11th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972--Collection of Works), 1972, p 58 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.151. Resume)

Translation: The investigation of the relationship of the ignition lag time of metal particles to temperature involved experiments with a shock tube 7.5 m long with an internal diameter of 100 mm (the length of the high-pressure chamber was 3 m) and an initial inflammable-gas pressure of 120 torr. The detonation products of a mixture of  $2H_2 + O_2 + 4He$  at various initial pressures and particle size not more than 20 microns were used as the pusher gas. From an analysis of the experimental data, it follows that the ignition of magnesium particles takes place in a reflected wave and the duration of preflame heating depends substantially upon the intensity of the incident shock wave. Calculations show that the heating of solid particles in a gas suspension leads to a considerable decrease of temperature in the

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USSR

UDC 621.777.07.001.5

GUN, G. Ya., POLUKHIN, P. I., YAKOVLEV, V. I., YUROV, Yu. V., KORITSKIY, G. M., PRUDKOVSKIY, B. A., and KUCHERYAYEV, B. V.

"Experimental Investigation of Speed Distribution During Pressing in Multi-channel Matrices"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 177-184

Translation: Results are given of experimental studies to determine the speeds of metal flow into a matrix with several channels, which form an established profile divided by crosspieces. Six figures and three tables.

1/1

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USSR

UDC 591.1

ZAL' SMAN, G. L., CHULIMOV, G. A., and YUROVA, K. S., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, USSR Academy of Sciences

"Dynamics and Principles of Saturation of the Organism With Inert Gases"

Moscow, Izvestiya Akademii Nauk SSSR, No 2, Mar/Apr 71, pp 192-203

Abstract: Maximum tolerable and minimum injurious (appearance of decompression sickness) oversaturation of the body with nitrogen, helium, and argon were determined and the laws governing the process of saturation of body fluids with these three inert gases were analyzed. Laboratory dogs were placed in a hyperbaric chamber and exposed to the gases at various pressures and for various periods. The results are presented in tables. The parameters determining the shape of the saturation curves and the period of half-saturation were calculated. On the basis of a comparison with analogous data previously obtained on humans, probable saturation curves applicable to the human body were constructed. The concept of a two-phase saturation process determined by different extracellular and intracellular transport mechanisms was established. A tricomponent mathematical model describing the concentration of an  $1/2$

USSR

ZAL'TSMAN, G. L., et al., Izvestiya Akademii Nauk SSR, No 2, Mar/Apr 71,  
pp 192-203

indifferent gas in the extracellular and intracellular compartments as a  
function of time and diffusion characteristics was proposed.

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USSR

UDC 621.039.51

NAUMOV, V. I., and YUROVA, L. N.

"Corrections to the Effective Resonance Integral With Large Steps in a Heterogeneous Lattice"

Fiz. Yadern.Reaktorov [Nuclear Reactor Physics -- Collection of works], No 2, Moscow, Atomizdat Press 1970, pp 133-142 (translated from Referativnyy Zhurnal--Yadernyye Reaktory, No 3, 1971, Abstract No 3.50,66)

Translation: In analyzing heterogeneous thermal neutron nuclear reactors it is usually assumed that resonant capture in the block can be described using the effective resonance integral in the Fermi moderation spectrum, this integral being a function only of the composition and size of the block containing the resonant absorber. In actual lattices, due to the heterogeneous placement of blocks which are sources of fission neutrons, the distribution of fast and resonant neutrons may be heterogeneous across each cell, while the spectrum in the block in the high-energy area may differ significantly from the Fermi spectrum. The necessity of special analysis of the area of large lattice steps in the analysis of a resonant capture has been mentioned repeatedly in the literature; however, the approximate estimates of the effect made for heavy water lattices have resulted in relatively slight corrections in the area of actual lattice steps. Later data

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USSR

UDC: 536.46:533.6

YURMANOV, YU.A., RYZHIK, A.B., LIMONOV, B.S. and MAKHIN, V.S.

"On Ignition of Dispersed Magnesium in Oxygen Behind the Shock Waves"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 (11-th All-Union Conference on Problems of Evaporation, Combustion and Gas Dynamics of Dispersion Systems, 1972), 1972, p 58 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B1005)

Translation: Tests were conducted with a shock tube of 7.5 m length, 100 mm inside diameter (length of high-pressure chamber 3 m), initial pressure of oxidizing gas (oxygen) 120 mm of mercury. Products of explosion of  $2H_2 + O_2 + 4He$  mixture with various initial pressures were used as propelling gas, particle size did not exceed 20 micrometer.

Analysis of experimental data shows that the ignition of magnesium particles occurs in the reflected wave and that the duration of pre-ignition heating depends substantially on the intensity of the impinging shock

1/2



USSR

YURMANOV, YU. A., et al., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972

wave. Calculations show that heating of solid particles suspended in the gas results in considerable reduction of reflection zone temperature, therefore it should be considered as temperature of the medium where ignition takes place. The observed exponential relation between ignition lag and temperature indicates that increase of the latter may result in ignition lag becoming of the same order as the duration of explosion induction.

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- 36 -

USSR

UDC 535.233+629.7.018.1

KARPUKOV, Ye. G., NEGRUTSAK, L. M., RYZHIK, A. B., FRAYERMAN, S. I.,  
and YURMANOV, Yu. A.

"Spectroscopic Investigation of Supersonic Heterogeneous Currents  
in a Combustible Condensed Phase"

Novosibirsk, Fizika gorennya i vzryva, No 3, 1973, pp 387-391

Abstract: In connection with the problem of the combustion of metallic particles in ultrasonic currents, the authors describe investigations into the relative energy spectrum distribution in the interaction of detonation waves in stoichiometric hydrogen-air mixtures with aluminum and magnesium powder suspensions. They conducted their experiments in accordance with the method of heterochromatic photometry, using a formula developed in this article for the radiating surface temperature. A description of the experimental equipment, which includes a shock tube, pressure sensors, and the ISP-51 spectrograph, is given. The tube was 7.5 m long and had an inner diameter of 100 mm, with the suspended material placed in the closed end. Results of the experiments were analyzed by comparing the experimental data with the conclusions of hydrodynamic theory.

USSR

UDC 629.7.036.54:536.46

YURMANOV, Yu. A., RYZHIK, A. B., LIMONOV, B. S., and MAKHIN, V. S.

"The Ignition of Dispersed Magnesium in Oxygen Behind Shock Waves"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik (11th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972--Collection of Works), 1972, p 58 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.151. Resume)

Translation: The investigation of the relationship of the ignition lag time of metal particles to temperature involved experiments with a shock tube 7.5 m long with an internal diameter of 100 mm (the length of the high-pressure chamber was 3 m) and an initial inflammable-gas pressure of 120 torr. The detonation products of a mixture of  $2H_2+O_2+4He$  at various initial pressures and particle size not more than 20 microns were used as the pusher gas. From an analysis of the experimental data, it follows that the ignition of magnesium particles takes place in a reflected wave and the duration of preflame heating depends substantially upon the intensity of the incident shock wave. Calculations show that the heating of solid particles in a gas suspension leads to a considerable decrease of temperature in the

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YURMANOV, Yu. A., et al., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik, 1972, p 58

reflection zone, and in connection therewith this temperature should be regarded as the temperature of the medium, at which the ignition process develops. Within the temperature range of  $T = 2160-3490^{\circ}\text{K}$  the ignition lag time turned out to equal 1.6-0.5 milliseconds. The disclosed exponential relationship of the ignition lag time to the temperature signifies that with a temperature increase, the lag value can become of the same order of magnitude as the induction period during detonation.

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USSR

UDC 621.777.07.001.5

GUN, G. Ya., POLUKHIN, P. I., YAKOVLEV, V. I., YUROV, Yu. V., KORITSKIY, G. M., PRUDKOVSKIY, B. A., and KUCHERYAYEV, B. V.

"Experimental Investigation of Speed Distribution During Pressing in Multi-channel Matrices"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 177-184

Translation: Results are given of experimental studies to determine the speeds of metal flow into a matrix with several channels, which form an established profile divided by crosspieces. Six figures and three tables.

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USSR

UDC 591.1

ZAL' SMAN, G. L., CHULIMOV, G. A., and YUROVA, K. S., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, USSR Academy of Sciences

"Dynamics and Principles of Saturation of the Organism With Inert Gases"

Moscow, Izvestiya Akademii Nauk SSSR, No 2, Mar/Apr 71, pp 192-203

Abstract: Maximum tolerable and minimum injurious (appearance of decompression sickness) oversaturation of the body with nitrogen, helium, and argon were determined and the laws governing the process of saturation of body fluids with these three inert gases were analyzed. Laboratory dogs were placed in a hyperbaric chamber and exposed to the gases at various pressures and for various periods. The results are presented in tables. The parameters determining the shape of the saturation curves and the period of half-saturation were calculated. On the basis of a comparison with analogous data previously obtained on humans, probable saturation curves applicable to the human body were constructed. The concept of a two-phase saturation process determined by different extracellular and intracellular transport mechanisms was established. A tricomponent mathematical model describing the concentration of an

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ZAL'TSMAN, G. L., et al., Izvestiya Akademii Nauk SSR, No 2, Mar/Apr 71,  
pp 192-203

indifferent gas in the extracellular and intracellular compartments as a  
function of time and diffusion characteristics was proposed.

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USSR

UDC 621.039.51

NAUMOV, V. I., and YUROVA, L. N.

"Corrections to the Effective Resonance Integral With Large Steps in a Heterogeneous Lattice"

Fiz. Yadern. Reaktorov [Nuclear Reactor Physics -- Collection of works], No 2, Moscow, Atomizdat Press 1970, pp 133-142 (translated from Referativnyy Zhurnal--Yadernyye Reaktory, No 3, 1971, Abstract No 3.50,66)

Translation: In analyzing heterogeneous thermal neutron nuclear reactors it is usually assumed that resonant capture in the block can be described using the effective resonance integral in the Fermi moderation spectrum, this integral being a function only of the composition and size of the block containing the resonant absorber. In actual lattices, due to the heterogeneous placement of blocks which are sources of fission neutrons, the distribution of fast and resonant neutrons may be heterogeneous across each cell, while the spectrum in the block in the high-energy area may differ significantly from the Fermi spectrum. The necessity of special analysis of the area of large lattice steps in the analysis of a resonant capture has been mentioned repeatedly in the literature; however, the approximate estimates of the effect made for heavy water lattices have resulted in relatively slight corrections in the area of actual lattice steps. Later data

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NAUMOV, V. I., and YUROVA, L. N., Fiz. Yadern Reaktorov, No. 2, Moscow, Atomizdat Press, 1970, pp 133-142

for uranium-graphite lattices have indicated that there is a considerable effect related to the difference between the neutron spectra and the Fermi spectra for this class of nuclear reactors. In connection with modern trends toward increasing lattice step in uranium-graphite nuclear reactors and the necessity of correct consideration of the number of captures in the uranium, this effect is quite important and requires serious study. Results of calculations on the influence of the spectrum of fast neutrons on the resonance approximation are presented in this article. 3 figures; 2 tables, 4 biblio. refs.

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UDC 621.039.5/6

USSR

LEYUNSKIY, A. I., YUROVA, L. N., BOBROV, S. B., MUROGOV, V. M., TOCHENYY,  
L. V., TROYANOV, M. F., and SHMELEV, A. N.

"Improving the Physical Characteristics of Fast Plutonium Reactors by  
Using  $U^{233}$  and Thorium"

Moscow, Atomnaya Energiya, Vol 30, No 6, Jun 71, pp 491-498

Abstract: Investigations carried out on the physics of fast reactors, both in the USSR and abroad, have shown the requirements for a high breeding time and safety guarantee may be contradictory. This article seeks to find ways for resolving these contradictions.

The authors first discuss the basic physical characteristics of fast reactors using a mixed fuel by equalizing the field of heat release. Computations showed that in a fast reactor using a mixed fuel composed of  $U^{233}$  and plutonium the radial coefficient of imbalance can be reduced, the breeding ratio increases significantly, and the doubling time is improved. Table 1 compares the characteristic of different types of high-power fast reactors.

The authors then discuss changing the profile of the heat release

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LEYPUNSKIY, A. I., et al., Atomnaya Energiya, Vol 30, No 6, Jun 71, pp 491-498

field during the operating period of a high-power fast reactor using a mixed fuel and give Figure 1 as illustration. They then discuss change in the reactivity during the same period for such a reactor, using Figures 2, 3, and 4 for graphic visualization. Finally, they discuss the Doppler and sodium coefficients of reactivity in such a reactor and use Figure 5 and Table 2 to clarify the discussions. Based on their research the authors claim that the possibility does exist for increasing the power strength and breeding time of the fuel with the simultaneous assurance of safety for a fast reactor using a sodium heat carrier; this is possible by using  $U^{233}$  and thorium in conjunction with  $U^{238}$  and plutonium in high-power fast reactors.

The article contains 5 figures, 2 tables, and a bibliography of 15 titles.

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UDC 621.039.51

YUROVA, L. N., ROMODANOV, V. L., SMIRNOV, V. YE., PANKRATENKO, D. A., and SHISHKOV, L. K.

"Application of the Method of the Pulsed Neutron Source to Systems With Heterogeneities"

Fiz. Yadern. Reaktorov (Nuclear Reactor Physics -- Collection of works), No 2, Moscow, Atomizdat Press 1970, pp 3-10 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.76)

Translation: Neutron physics problems are frequently solved by applying the theory of perturbations -- to calculate the change in criticality of nuclear reactors or various neutron flux functionals. The possibility is studied of using the theory of perturbations for calculation of reactor shielding. The theory of perturbations (generally speaking of high orders) can also be applied to the unstable equation of neutron transfer. In the experiments described with pulsed neutron source, a change in decay constants was achieved by two means: by changing the geometric size of the specimen or by changing its diffusion characteristics.

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